What Is Claimed:

1. A signal processing method comprising:

establishing at least first and second sample rates with the second sample rate higher than the first;

establishing at least first and second degrees of smoothing with the second degree less than the first degree;

sampling a signal at the first rate;

smoothing the sampled signal with the first degree of smoothing;

evaluating a first parameter value of the smoothed, sampled signal, and

where the first parameter value crosses a threshold, altering both the sample rate and the degree of smoothing for a predetermined time interval.

2. A method as in claim 1 where at least during the predetermined time interval, the degree of smoothing is increased.

3. A method as in claim 2 where the degree of smoothing is increased linearly.

4. A method as in claim 2 where the degree of smoothing is increased by increasing a number of sampled signal values incorporated into the smoothing process.

5. A method as in claim 2 where the second degree of smoothing is maintained for a selected time interval before the degree of smoothing is increased.

6. A method as in claim 1 where the threshold varies in response to noise on the signal.

7. A method as in claim 1 which includes sensing an ambient condition and producing a noisy signal indicative thereof.

8. A method as in claim 7 which includes determining a minimum value of a predetermined number of samples.

9. A method as in claim 7 which includes determining a maximum value of a predetermined number of samples.

10. A detector responsive to an environmental condition comprising:

at least a first sensor generating an output representative of the sensed environmental condition, the output including noise that is not representative of the sensed environmental condition;

a processor and executable instructions that process and average the sensor's output to remove at least some of noise and produce a processed signal where the degree of averaging is altered as a function of time in response to at least one of the output or the signal, and including instructions to evaluate the processed signal.

11. A detector as in claim 10 where a selected change in the output causes the degree of averaging to be decreased such that the processor responds faster to the change in output, than before the averaging was decreased.

12. A detector as in claim 11 where the amount of averaging has a minimum value.

13. A detector as in claim 10 where a change in the output causes the degree of averaging to be reset to a minimum value such that the processor responds faster to the change in output than before the reset but removes less noise.

14. A detector as in claim 10 where the degree of averaging increases over time when the output is not significantly changing.

15. A detector as in claim 14 where the degree of averaging is clamped at a maximum value.

16. A detector as in claim 15 where the maximum value is associated with a predetermined maximum signal to noise ratio.

17. A detector as in claim 11 where the minimum value is associated with a predetermined minimum signal to noise ratio.

18. A detector as in claim 11 where the minimum value is associated with a predetermined response time relative to the change in output.

19. A detector as in claim 10 where the sensor is at least one of a gas sensor, a smoke sensor, a temperature sensor, a light sensor, a pressure sensor, a position sensor, or a humidity sensor.

20. Software recorded on a computer readable medium comprising:

instructions for sampling a noisy signal;

instructions for establishing an average noise parameter for the signal;

instructions for updating a parameter indicative of a number of signal samples to be used in an averaging process;

instructions for forming an averaged signal value;

instructions for comparing the averaged signal value to a representation of the average noise parameter, and responsive thereto, including further instructions for altering a sample rate parameter and for altering the number of signal samples used in the averaging process.

21. Software as in claim 20 which includes:

additional instructions for continuously varying the number of signal samples.

22. Software as in clam 20 which includes:

additional instructions for establishing a range over which the number of signal samples is altered.

23. Software as in claim 20 which includes:

additional instructions for establishing a time interval during which the number of signal samples is varied.

24. An apparatus comprising:

a signal input;

a processed signal output;

control circuitry coupled to the input and the output, the circuitry including executable instructions for sampling a received signal at a

first rate, forming an averaged signal based on a first number of samples, further instructions for evaluating a variability characteristic of the received signal and for simultaneously altering both the sample rate and number of samples and including a timer for determining when the sample rate is to be altered again.

25. An apparatus as in claim 24 which includes a display, coupled to the control circuitry, which displays information pertaining to the received signal.

26. An apparatus as in claim 24 which includes executable instructions to maintain the altered sample rate until the timer times out.

27. An apparatus as in claim 24 which includes additional instructions for incrementally altering the number of samples during a selected time interval.

28. An apparatus as in claim 27 where the additional instructions linearly alter the number of samples during the selected time interval.

29. An apparatus as in claim 27 where the additional instructions linearly alter the number of samples during at least one of sampling at the first rate, or, sampling at the altered rate.

30. An apparatus as in claim 24 which includes an ambient condition sensor coupled to the signal input.

31. An apparatus as in claim 27 which includes an ambient condition sensor coupled to the signal input.

32. An apparatus as in claim 31 which includes a display, coupled to the control circuitry, which displays information pertaining to the ambient condition.

33. An apparatus as in claim 32 where the display is configured to present alpha-numeric information pertaining to the ambient condition.

34. An apparatus as in claim 33 where the sensor comprises a sensor of a selected fluid.

35. An apparatus as in claim 24 where the timer is implemented as one of executable instructions in combination with a hardware processor, or, a hardwired timing device.

36. Software stored in a computer readable medium comprising:

first software for processing binary signal information using at least a first, fixed, number of samples, and a second variable number of samples, with the second number of samples less than the first; and second software for providing the binary signal information at first and second, different sample rates with the fixed number of samples associated with the first sample rate and the variable number of samples associated with the second sample rate.

37. Software as in claim 36 where the fixed number of samples exceeds at least some of the second number of samples.

38. Software as in claim 36 which includes further software to vary the second number of samples linearly.